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EXAMINER	
OLANIRAN, FATIMAT O	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,944	OHTA, YOSHIKI	
	Examiner	Art Unit	
	FATIMAT O. OLANIRAN	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/28/08,5/6/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 3/17/2008 have been fully considered but they are not persuasive.

Applicant argues that "..."a characteristic dividing device," "a characteristic dividing process," and "a characteristic dividing section" as described in the instant application are not disclosed..."

The limitations are disclosed in Emoto (5572443) as put forward in the first OA on the merits. Applicant's assertion does not specifically pointing out how the language of the claims patentably distinguishes them from the references. In addition applicant argues by reciting the "particular effects" of applicant's "characteristic dividing device", however applicant claimed a "characteristic dividing device" not the detailed effects presented in applicant's argument.

Applicant argues that McKinney does not disclose division along a frequency/time axis. Examiner respectfully disagrees, Emoto in view of McKinney disclose division along a frequency/time axis as put forward in the first OA on the merits. The signal displayed on the McKinney axes is not pertinent to the combination. Furthermore frequency/time axes, graphs and other scaled displays are well known in the art at the time of the invention.

Applicant argues, "... "synthesizing" means recombining the divided block data (e.g. time/frequency division) respectively corrected as disclosed in the specification

of the instant application, for example, at page 12, lines 21-24 (paragraph [0043] of the published specification) ..."

Examiner respectfully disagrees with applicant's interpretation as applicant is reading the limitations in the specification into the claims.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, 7-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al (5572443) in view of McKinney et al (7209796).

Claim 1, Emoto discloses a sound field control system (col. 1 line 5-9), comprising: a characteristic measuring device, which measures an impulse response of a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig. 9); a characteristic dividing device which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19), so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19); a space characteristic deciding device which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the

target sound field (col. 21 line 22-28, "computing circuit"); a difference detecting device which detects a difference between the decided target space characteristic and a predetermined desired space characteristic serving as an acoustic characteristic of a space in a desired sound field (col. 24 line 42-47); a sound source dividing device which divides a sound source component of a sound source for each of the predetermined frequency bands, the sound source being listened to in the target sound field (col. 19 line 10-13); a correcting device which corrects at least one sound source component for each of the sound source components based on the detected difference between the space characteristics (col. 12 line 49-55); and a sound source synthesizing device which synthesizes the sound source again based on the corrected sound source component (col. 27 line 14-15 and col. 27 line 27-31).

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis .

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

Claim 3 analyzed with respect to claim 1, Emoto further discloses wherein the characteristic measuring device comprises: an amplifying device, which amplifies sound based on a test signal (col. 14 line 35-37, "power amplifier", "measuring signal"); a signal generating device which generates the test signal (col. 14 line 36, "loudspeakers"); a collecting device which collects the sound generated from the amplifying device (col. 14 line 37-38, "microphone"); and a response calculating device which calculates an impulse response between the amplifying device and the collecting device based on the test signal and the collected sound (col. 12 line 50-55).

Claim 4 analyzed with respect to claim 1, Emoto further discloses wherein the correcting device corrects the sound source component included in a frequency band exceeding a predetermined frequency among the predetermined frequency bands (col. 4 line 55-59 and col. 14 line 7-11).

Claim 5 analyzed with respect to claim 1, Emoto further discloses wherein the correcting device corrects the sound source component included in an elapsed time exceeding a predetermined elapsed time among the predetermined elapsed times (col. 5 line 36-42).

Claim 7, Emoto discloses a sound field controlling method (col. 1 line 5-9), comprising: a characteristic measuring process which measures an impulse response of

a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig. 9); a characteristic dividing process which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19), so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19); a space characteristic deciding process which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the target sound field (col. 21 line 22-28, "computing circuit"); a difference detecting process which detects a difference between the decided target space characteristic and a predetermined desired space characteristic serving as an acoustic characteristic of a space in a desired sound field (col. 24 line 42-47); a sound source dividing process which divides a sound source component of a sound source for each of the predetermined frequency bands, the sound source being listened to in the target sound field (col. 19 line 10-13); a correcting process which corrects at least one sound source component for each of the sound source components based on the detected difference between the space characteristics (col. 12 line 49-55); and a sound source synthesizing process which synthesizes the sound source again based on the corrected sound source component (col. 27 line 14-15 and col. 27 line 27-31).

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis.

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time

the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

Claim 8, Emoto discloses a recording medium on which a sound field controlling program is recorded so as to be readable through a computer, wherein the sound field controlling program causes the computer to function as (col. 12 line 44-48): a characteristic measuring device which measures an impulse response of a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig. 9); a characteristic dividing device which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19), so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19); a space characteristic deciding device which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the target sound field (col. 21 line 22-28, "computing circuit"); a difference detecting device which detects a difference between the decided target space characteristic and a predetermined desired space characteristic serving as an acoustic characteristic of a space in a desired sound field (col. 24 line 42-47); a sound source dividing device which divides a sound source component of a sound source for each of the predetermined frequency bands, the sound source being listened to in the target sound field (col. 19 line 10-13); a correcting device which corrects at least one sound source component for each of the sound source components based on the detected difference between the

space characteristics (col. 12 line 49-55); and a sound source synthesizing process which synthesizes the sound source again based on the corrected sound source component (col. 12 line 55-58).

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis.

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

Claim 9, Emoto discloses a sound field space characteristic decision system, comprising: a characteristic measuring device which measures an impulse response of a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig. 9); a characteristic dividing device which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19), so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19); and a space characteristic deciding device which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the target sound field (col. 21 line 22-28, "computing circuit").

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis.

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

Claim 11 analyzed with respect to claim 9, Emoto further discloses, wherein the characteristic measuring device comprises: an amplifying device which amplifies sound based on a test signal (col. 14 line 35-37, "power amplifier", "measuring signal"); a signal generating device which generates the test signal (col. 14 line 36, "loudspeakers"); a collecting device which collects the sound generated from the amplifying device (col. 14 line 37-38, "microphone"); and a response calculating device which calculates an impulse response between the amplifying device and the collecting device based on the test signal and the collected sound (col. 12 line 50-55).

Claim 12, Emoto discloses a sound field space characteristic deciding method, comprising: a characteristic measuring process which measures an impulse response of a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig.

9); a characteristic dividing process which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19), so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19, Fig. 10); and a space characteristic deciding process which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the target sound field (col. 21 line 22-28, "computing circuit").

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis.

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

Claim 13, Emoto discloses a recording medium on which a sound field space characteristic deciding program is recorded so as to be readable through a computer, wherein the sound field space characteristic deciding program causes the computer to decide a characteristic of a sound field space, and to function as (col. 12 line 44-48): a characteristic measuring device which measures an impulse response of a target sound field serving as a sound field to be reproduced (col. 21 line 12-17, Fig 9); a

characteristic dividing device which divides the measured impulse response into two or more for predetermined frequency bands (col. 21 line 17-19) and into two or more for predetermined elapsed times, so that the impulse response is divided into a plurality of block data on a frequency axis (col. 21 line 17-19); and a space characteristic deciding device which decides, based on the divided block data, a target space characteristic serving as an acoustic characteristic of a space in the target sound field (col. 21 line 22-28, "computing circuit").

Emoto does not disclose and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis.

McKinney discloses and into two or more for predetermined elapsed times, and divided into a plurality of block data on a time axis and a frequency axis (col. 7 line 33-36, Fig. 5). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the character dividing device of Emoto with the axes as taught by McKinney in order to be able to analyze waveform changes with time and frequency.

3. Claim 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al (5572443) in view of McKinney et al (7209796) in further view of Moriya et al (07020896).

Claim 2 analyzed with respect to claim 1, Emoto in view of McKinney discloses wherein when the acoustic characteristic of the space is a numerical characteristic

indicating a sense of spaciousness which is a sense of a size of a sound field felt by a person (Emoto col. 21 line 25-28) and a weight coefficient determined for each of the block data (Emoto col. 21 line 30-35).

Emoto in view of McKinney does not disclose the space characteristic deciding device decides the space characteristic based on a weighted linear sum of an energy value of each of the block data.

Moriya discloses based on a weighted linear sum of an energy value of each of the block data (constitution line 1-6). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the sound field device of Emoto in view of McKinney with the linear sum method of Moriya in order to reduce the amount of computations as taught by Moriya (constitution, line 11).

Claim 10 analyzed with respect to claim 9 Emoto in view of McKinney discloses wherein when the acoustic characteristic of the space is a numerical characteristic indicating a sense of spaciousness which is a sense of a size of a sound field felt by a person (Emoto col. 21 line 25-28) and a weight coefficient determined for each of the block data (Emoto col. 21 line 30-35).

Emoto in view of McKinney does not disclose the space characteristic deciding device decides the space characteristic based on a weighted linear sum of an energy value of each of the block data.

Moriya discloses based on a weighted linear sum of an energy value of each of the block data (constitution line 1-6). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the sound field device of Emoto in view of McKinney with the linear sum method of Moriya in order to reduce the amount of computations as taught by Moriya (constitution, line 11).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al (5572443) in view of McKinney et al (7209796) in further view of Hosoi (5754665).

Claim 6 analyzed with respect to claim 1, Emoto in view of McKinney do not disclose wherein the correcting device comprises: an added information calculating device which calculates, based on the detected difference between the space characteristics, added information to be added to at least one of the sound source components; and an information adding device which makes a correction by adding the calculated added information to the sound source component.

Hosoi discloses wherein the correcting device comprises: an added information calculating device which calculates, based on the detected difference between the space characteristics (col. 3 line 1-3), added information to be added to at least one of the sound source components; and an information adding device which makes a correction by adding the calculated added information to the sound source component (col. 3 line 3-5 and col. 3 line 9-11). Therefore it would be obvious to one ordinarily skilled in the art at the time the invention was made to modify the correction circuit of

Emoto in view of McKinney with the noise canceller of Hosoi in order to have adaptive control of the correction parameters.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FATIMAT O. OLANIRAN whose telephone number is (571)270-3437. The examiner can normally be reached on M-F 10:00-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FO

/Vivian Chin/
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